Notebook, N-04-12-12.3

This notebook was used during December 1904 and May-June 1905. Most of the book contains notes by Edison and an unidentified experimenter regarding storage batteries. The experiments are numbered from 1 through 645. Among the entries are items pertaining to the loss of capacity, including an examination of the presence of mercury in the electrolytic solution. Other entries relate to the rejuvenation of the nickel electrode. At the end of the book is a phonograph drawing from June 1905. The pages are unnumbered. Approximately 140 pages have been used.

X-E-172 N-04-12-12

Dec 12

Experiments on dissolving Mercury in KOH in presence of various things, a Try to ascertain what capacity of battery gradually disappears

Two test tubes 10 cc of Reg 21% KOH, treated Ba

The other tube 21% stick KOH by alcohol.
2 cc of solution (1000 cc 1000 Milligm $HgCl_2$) put in each tube —

In Stick KOH, no precip except few flocks of white, 2

In Reg KOH, no Hg precip but more flecks of white precip.

Slick Koff		Reg KOK	
grms Hg of Sol		grms Hg of Solution	
2	few white specks	2	more white than slick
4	No precip	4	Nothing precip white from [illegible]
6	"	6	No trace of white ppt. [illegible]
8	Hg Red precip shows after 5 min strong -	8	No Hg precip -
		10	No precip of Hg
		12	No Hg pp -
		14	"
		16	"
		20	"
		24	"
		28	faint Hg precip

The color of precip is more red than yellow like the others

Lump KOH, not fettered or Barium nit

2 gc	No Hg precip
4 cc	"
6	"
8	Faint Hg precip — not 1/2 that of Stick KOH after 5 min. Evidently Crude is nearly as good as Stick

Slick KOH, treated with BaOH.

25 cc Hydrosol no precip -
35 cc "
55 cc "
75 " "
95 " "

Silicic KOH -
treated with Lime
10 - no precip
20 "
30 "
40 "
60 "
80 "

Stick KOH, $\frac{1}{10}$ of 4" filter paper.
20 cc Hg(NO3)2 sol no precip —
30 " "
70 " "
110 " "

I found that when Hg is in the KOH. ~~that these~~ the slightest amount is detected by adding weak ammonia. It gives a strong white precipitate —

Possibly ammonia in battery would be ok but am afraid the Hg in non would get to the white precip & fail to be reduced hence non would go bad —

I N

I find that Mercurous chloride — the slightest amount is precipitated with strong KOH, showing that it is the Mercuric Oxide that is soluble —

If 100 cc Reg KOH, has poured into, it 5 cc of (5 grm 1000) $HgCl_2$ Solution get good precip of oxide —
but if the 100 cc of KOH is diluted 5 times, + the same amount of Hg Solution put in there is no precipitate, on adding another 5 cc of the 5 unit solution get precip —

Hence it will be dangerous to dimmish the % of KOH in battery if Hg is there in a mercuric state,

With 100 cc Reg KOH 1 cc of 5 unit $HgCl_2$ Solution goes in without precip but 2 cc shows slightly —
Therefore the solubility ~~down~~

increases as the Concentration of the KOH diminishes —

Iodide of Sodium does not dissolve the precip of mercuric ~~Iodide~~ by NH4 in KOH, it turns it yellowish.

If INa Gr added to KOH containing dissolved HgO. + then NH4 I added the precip is Red & flocculent like Fetric -

NaI dissolves HgO in alkali OH -

I think that when NaI is dis in HgO KOH, that the red pp on adding NH4 is HgI

NaI does not appear to dissolve Hg2O appreciably yet does it leave a dirty colored pp behind but think it does dissolve - there is some

Mercuric in the HgO as the ~~[illegible]~~ as added NH_4 turns it slightly reddish but not much —

Reg KOH, NaI & NH_4 give no sign of coloration, added some Al KOH, no sign —

pp of Mercurous in KOH, is partly dissolved by Thiosulphate, leaving a whitish pp of ½ or less quantity What is this, possibly its the white part of the Red Crystal in globs particles —

Reg dissolves very much more Mercurous OX than this, if precip light seem dissolve at all in excess of KCy

Precip of HgO in NH4y is dissolved by Thiosulphate. its also dissolved by KCy but not by Iodide Na this is a distinction, as Iodide dissolves but + Thio + KCy do not - why? —

Iodide Na gives no pp in presence of either Thio or KCy in HgKOH NH4y solution —

perhaps the white part of the precip of HgO is HgCl as I think that is natural —

I make some HgCl - put it in KOH, Thio dont dissolve it, Iodide Na dont dissolve it, KCy dont dissolve it

But I notice that the white pp by adding Hg No3 to KOH - nearly all dissolves when poured in KOH sol there is some pp not

dis is this, HgCl or what,

HgCl apparently most weak KOH, but is not strong KOH, Therefore the Red Crystal in globs may be a combin of HgCl + H_2O, & if I use strong KOH ~~this~~ ~~the~~ This the whole may dis or KCy soluble

In all cases working with Mercurous, there is a very slight white pp. left. This may be some reg oxyorganic in the KOH, which is rendered insol by H_2O Rocolim,

1 wet
13 25
1 Dry 88 83

3 wet
120 118
3 Dry 120 125 - 130 133

4 wet
93 115
4 Dry 132 148 160 167 - 183 192 - 213 212 - 218 - 205

6 wet
117 145 165 165
6 Dry 142 157 162 165 - 183 - 190 - 200 - 226

~~6½ wet~~
~~85 110~~
~~6½ Dry 142 167 180 - 192 - 213 - 223 - 246 - 245 - 244 - 258~~

May 17 1905 –

Experiments on Rejuvenating Nickel Electrode of Cells which have gone down to 100 m a h per pocket in Capacity. (2.18 = 31.5)

Soaked in following Solutions with idea thin films of some Chem Fe Hg - Graphite or other Carbon acids or Compounds on Contrads.

1 = Strong ~~saturated~~ $NiCl_2$

2 " " $NiCl_2$ wetted in alcohol

3 Nitrate Ni + H_2O_2

4 Oxalate Potash, + H_2O_2

5 Na Chloride – + H_2O_2

6 "Mercuric Cyanide"

6½ " + H_2O_2

7 wet 122 133
7 Dry 148 161 171 177-192-197 200-200-218
5 wet 20 25
5 Dry 114 120

10-1st Wet
100-127
10 D x x 140 153.173-187 188

12 wet
SC 85

13 wet
47 62

14 wet
106 126
140 x x 126 133.142

15 wet 142 182 199 204.225-229 251-253-260-263 287
15 D x x 158 156 166.190-252-253.197 197 213-220

16 wet 42.97
16 D x x 180 195-210.220-227-228-240

17 D x x x 115 133
17 wet 133 158 172 171.183-185 198-195-
18 D 153 177-183 185-198.202-214 -208-215-223
18 wet 83 93
19 wet
43 77

7. Strong H_2O_2 – ideal 20% of Reg in H_2O –

8. Sulphate Ammonia

9. Chloride Ammonia –

10. Strong NaOH – Ammonia –

~~11. Sulphate Ammonia + H_2O_2~~

12. Cl Na + H_2O_2

13. Strong $MnCl_2$ ~~+~~ + H_2O_2

14. " " in methyl alcohol ~~+~~

15. K Ferrocyanide ~~+~~

16. K " ~~+~~ H_2O_2

17. Ferricyanide –

18. " + ~~H_2O_2~~

19. Hyposulphite Soda

20. Oxalate Ammonia

22 wet
100 122
22 D x x x 139 153 - 180 Red bottom

All the bad ones are those in which the Solution dissolves the Nickel Hydrox
25 D 140 179 - 195 200 - 217
25 W 190 - 200 - 205

27 wet
50 75

29 - W 142 - 162 - 174 184 - 192 - 202 217 - 223
29 D x x 171 177 192 - 204 - 212 - 211

30 wet
10 25

31 wet
66, 73

33 wet
42 47

34 wet
15 23

21 Oxalate ammonia + H_2O_2

22 Acetate Potash + H_2O_2

23 " + KOH,

24 Borax

25 " + H_2O_2

26 ~~Acetate~~ Bi Potassium Sulphate

26 " + H_2O_2

27 Carbonate Soda

28 " + H_2O_2

29 Bicarbonate Soda + H_2O_2

30 Chloride ammonia + H_2O_2

31 Acetate Nickel ~~Sulphate~~ + Kacetate + H_2O_2

~~32 " + H_2O_2~~

33 Sulphate Nickel

34 " + H_2O_2

15 Cy 17 Cy 43 Cy 18 Cy

All the good lines have Cy radical in Except

37W 33 35
37D X X 116 123 147

38 Sod 50 82
39 D X X 124 132 - 141

29 Bi Carb K + 39W 13 25

54 Nitrate K -

40W 23 57

41 Bary 137 157
41W 40 56

42W 23 47
42D X X 158 172 190 ~~[illegible]~~ 200

43D 203 215 218 217 - 232 245 - 227 - 241 - 237 - 252

43W 140 162 182 183 - 197 - 200 - 220 - 220 - 237 - 236 - 242

44W 58 72
44D X X 118 137

45W 43 94
45D X X 143 152 - 172

46W 40 97

35 Formate Nickel salt

36 " + H_2O_2

37 Ammonia - full sl v2 - W

38 Ammonia + H_2O_2 1/2 strength of 36

39 Citrate ~~Iodine~~ K

40 " + H_2O_2

41 Tartrate Soda or K

42 " + H_2O_2

43 Cyanide Potash + H_2O_2

44 Cyanide of Ni & K ~~Salt~~ no Sec. Cy -

45 " + H_2O_2

46 Cyanide Zinc + K salt

~~47 " + H_2O_2~~

48

49 W 10 38

50 W 60 92

51 W 94 117 153 170-193
51 D

52 wet 40 67
52 dry 115 112

53 W 113 140-157 162 185-197 213-209-215-223
53 Dry 150 152-

54-W 147 172-187 192 211 219 233-192
54 D 143 149 [illegible] -235-232

56 W 20 95
56 dry 152 159

57 W 87 95

58 W 75 105
58 D 123 124

59 W 89 117
59 D 122 121

Count 2.8

61 D 30 59

62 W 99 117
62 D 140 143

49 - Oxalate K -

50 Nitrate Ammonium + H_2O_2

51 Potash Nitrite + H_2O_2 strong

52 Sulphate Ammonium + H_2O_2

53 Nitrate K + H_2O_2

54 " only

55 NH4Cl free NH4 + lots 21% KOH, H_2O_2

56 NH4Cl - 21% KOH + H_2O_2

57 Nitrate NH4Cl Double salt + H_2O_2

58 - alcohol. Ethylic - H_2O_2

59 - Benzol - + H_2O_2

60 Chloroform - + H_2O_2 [illegible]

61 Pyridin -

62 - Acetone

May 19 1905 — all fm 1 to 60 — m w
to book pres of Aliens a
Men teach, Rule Reg

63 mg

64 D 114 148

65 W 18 52
65 D 138 150

66 D 155 167

67 D 100 100
67 W W 100 100

68 W 47 70
68 D 33 43

68 D 15 33

69 D 15 33

70 D 50 115

71 mg

72 mg

73 D 125-131
73 W 110 115

63 - phenolchl Tin (Pungent)

64 Lithe ROH & Pyrogallic A -

65 = Sulphite Soda

66 Ferrous Sulphate

67 Aldehyde -

68 1/2 Magnesium Chloride & H_2O_2

69 " " only

70 Potash Palm

71 Ferric Chloride -

72 Carbolic A in H_2O + H_2O_2

73 Amylic Alcohol - H_2O_2

74 Aniline

75 Chloral Hydrate -

76 mg 76D - 78 - 100

77 D 138
77

both Rotten, to Eaten away

79 mg 77DS 14.8

80W - 15 - 16
80D 31 29

83W 0
83D 15

87 W 45
87 D 40

76 aniline

77 Ell

78 Ferrous Chl in Ethyl Alc

79 Ferrous Chl in 50% Ethyl

80 " oil

81 Chlorate K + Prussian H_2O_2 + H_2O_2

82 " + H_2O_2

83 Permanganate K + Prussian H_2O_2

84 Saturated Cyanate K

85 Dilute "

86 Weak KCy

87 Sulphocyan[illegible] K + Prussian H_2O_2 cold + Prussian H_2O_2 warm

88 KCy + CaCy

89 Dry 243 – 250, 287 – 295 – 317 – 323 348
89 wet 283 267 – 300 – 312 – 311
90 D 158 – 162 195 192, 200 – 200
90 W 97 –

93 wsc
93 D 145

94 W 87
94 D 114

95 W 42
95 D 117

96 W 47

Cupe family bright –

98 W 62
98 D 210 – 237 – 240 – 250 – 260 – 267 – 274 – 281 – 300 – 344 348
310 392

99 W 13
99 D 5 pts

0 100 wet 26

89 Arsenate K – Prev H_2O_2 or H_2O_2

(Jobs wasted when 21% Hot & wasted again)

90 Bisulphide Carbon

91 Benzoate K

92 Salicylate K or Na

93 Molybdate K – Prev H_2O_2 Warm or Na

94 Chromate K or Na

95 Ferrocyanide K or Na Prev with H_2O_2 Warm

96 Cupe Barium Chloride Prev with H_2O_2 Warm

97 Bromide K Strong Prev H_2O_2 – H_2O_2

98 Cadmium Iodide Prev H_2O_2

99 Ammonia Hydrosulphide Warm

100 Sulphide K – Liver Sulphur Prev H_2O_2

101 W 42
101 D 130-162 143-175-188

102 W 23
102 D 53

Cupe pretty bright

103 W 21
103 D 132

Cupe bright

104 W 100
104 D 175-185-190-190

107 W 7
107 D 90

110 W 100
110 D 162

111 D 143-157-
111 W 90-97

112 D 100

101 Cadmium Chloride very little CuCl- Prev H_2O_2 -

102 Calcium Chloride + Previous H_2O_2 - very sharp

103 Zinc Chloride Cupe bright Prev H_2O_2

104 Pot perchlorate K Prev H_2O_2 + H_2O_2

107 Chlorid chloride

106 Cupric Ammonium (Radient)

107 K Fluoride Prev H_2O_2 + H_2O_2

108 Mercuric Chloride H_2O H_2O_2 Prev

109 " " nitrate Prev H_2O_2

110 Isobutylacetylene - Small amount Prev H_2O_2 - by Dalli to bed minimum quantity on Rule Lake

111 Nitrobenzol not H_2O_2 -

112 Dinitrobenzol in alcohol Prev H_2O_2 case

113 Indoxocelate of K

114W 16

Sommerhut bringt Schmerz —

114W 100

120 wet 45
120 dry 145 167

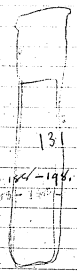
121 D 63 98
121 W 23 47
122 W 77

114 Iodoform m. Salvarsan, Prev H_2O_2 wet
115 KCy + HgCy
116 (CaCy KCy dix of 88)
117 CdCy KCy
118 Cyanuräti K
119 Urea. Prev H_2O_2 + H_2O_2
120 Turpentine,
121 Terpenol. Dry Cup —
122 Hydroquinone. Prev H_2O_2 —
123 Formaldehyde
124 Nitroprusside K or Na
125 ~~Tetramethylammonium Iodo.~~
126 Cyanetta Sugar — 10 gm —

130W 76

131W 118
131D 140

132W 150, 163 184 – 198, 200 – 217 – 232
132D 165 – 195 – 1[illegible]



131 Cups clean

135W 129
135D 119 – 100

136W 112
136D 80

138W 173 – 183 – 183
138D

139W 88
139D 119

127 K & glucose –

128 Alcoholic KOH

129 " NH4 –

130 Camphor in Alcohol, Dry –

131 Pretty Conc $KNO_3 + H_2O_2$ Kept warm

132 B. Carb Conc $Na + H_2O_2$ Kept warm Prevent H_2O_2 alone

133 Strong Sugar + K Cyanate Warm

134 Strong Sugar + Ferrocy, Warm –

135 Conc K Cyanate, H_2O_2 & previous H_2O_2 Warm

136 Conc Ferrocy K no H_2O_2 but prev H_2O_2 warm

137 Hg Cy Conc – H_2O_2 or Previous H_2O_2 Warm

138 Carb Soda Conc H_2O_2 + Previous H_2O_2 Warm

139 Mercury Cy Conc Prev H_2O_2 Warm

140

142 D 130

1

143 W 53
143 D 143

144 W 86
144 D 157

145 W 49
145 D 133

146 W 112
146 D 152

147 W 52

148 W 71
148 D 143

149 W 7

141 – K Perborate – $PrzoH_2O_2 + H_2O_2$

142 Tetraethylmethylene amine $PrzoH_2O_2$ Dry

1

143 Trimethyloxymethylen amine $PrzoH_2O_2$ Dry

144 Hexamethylenamine $PrzoH_2O_2$ Dry

145 Trioxyethylene-amine $PrzoH_2O_2$ Dry

146 Cyandiamine $PrzoH_2O_2$ Dry

147 Tint Triaethyl hydroxyd $PrzoH_2O_2$ Dry

148 Tetraethylamine Hydrox $PrzoH_2O_2$ Dry

149 Triaethylsulfin – $PrzoH_2O_2$ Dry

150 W 92

149 D 54

152 W 61
152 D 161

153 W 75
153 D 152

154 W 92
154 D 170

155 W 90
155 D 150

156 W 65
156 D 145

150 K Chlorate. Prev H_2O_2 H_2O_2 Dry

151 - Make a Reg run in cell with 3 grams perchlorate Potassium.

152 Diazthylamine 10% Prev H_2O_2 Dry

153 Ethylenediamine Prev H_2O_2 Dry

154 Triethylenamine Prev H_2O_2 Dry

155 Propylamine Prev H_2O_2 Dry

156 Benzylamine - Prev H_2O_2 Dry

157 W 75

158 W 102

159 W 97

160 W 55

161 W 83
161 D 47
Opts green — think Ni has dissolved

162 W 55

163 W 61

164 D 117

157 Conc ferrocyK + 21% KOH Prev H_2O_2

158 Conc ferrocyK + 10% KOH Prev H_2O_2

159 Conc ferrocyK + 5% KOH Prev H_2O_2

160 " 1% KOH Prev H_2O_2

161 Conc ferrocyK + NiOH, full strength, Prev H_2O_2

162 Strong ferricy + 21%. Prev H_2O_2

163 " 5% "

164 " 1% "

165 - full strength H_2O_2 in tube. Then in glucose with 5% KOH

166 W 112
166 D 145
164 W 80

167 bright Sequest deep red spots
167 D 162 182
167 W 120

169 W 75
169 D 182 190
169 – fine red bright gray
bad surface –

foaming so
170 no bright but pleasant when deposited
dark does not ref –
170 D 163 190 – 203 – 215 – 235 – 241 249 –
170 W 86

171 W 86
171 D 177 187 – 193 – 217

166 – K Cyanate, 21% KOH Prev H_2O_2

167 " 1% " "

168 Bi Carb K Conc Prev H_2O_2 + KOH, 5% –

169 – KOH, 1% Glucose 20% Prev H_2O_2 Hot

170 KOH 5 " 20% "

171 KOH 20 " 20% "

172 strong Ferrocy K + Glucose Prev H_2O_2 Hot

173. " " + 1% KOH, Prev H_2O_2

173w 57

took out after 2 hours ½ was green - washed & put in H_2O Carbonate Conc NH_4

175w 110

[illegible] I was [illegible] Squalid out

176 - D. 196, 222 - 228, - 232 - 253
176 - W 100, 130 140

150 w 118 - 143 142

173 Conc K Nitrate, 1/4" glucose Prest H_2O_2

174 Conc K Nitrate, 21% KOH, Prest H_2O_2

175 Conc K Nitrate, Fuming 1/4" - Prest H_2O_2
[illegible] 8 hours squalid out - washed & put in 21% KOH

176 Barium Cyanate, Prest H_2O_2

177 Conc K Nitrate 1/4" glucose, 1/2" ammonia Prest H_2O_2

178 inch glucose, inch ammonia Prest H_2O_2

179 inch glucose, 50% KOH, inch ammonia Prest H_2O_2

180 Barium Nickel Cy 1/4" Prest H_2O_2

181 D 167 173 - 215 - 202
181 W 89

182 D 40
182 W 7 -

183 W 47
183 D 67

184 D 122 167
184 W 43

185 D - 209 - 223 - 233 - 247 - 277 - 282 291 - 312 - 322 - 337
185 W 67

186 W 129 147
186 D 167 173 206 - 235

187 W 135 162
187 D pretty bright D 148 205

188 D 153 178 - 200
188 Bright
permanent initial yellow and bright
bracket front white flame ellung glucose
and bright black or bright metallic
grey end front

181 Cupro Cupric Cy sat in KCy - Prev H_2O_2

182 - Alumcum hot in KCy weak Prev H_2O_2

183 Cadm Cy in KCy - Prev H_2O_2

184 Lead Cy in KCy Prev H_2O_2

185 Potassio Cupric Cy white bright hot Prev H_2O_2

186 - 1" Sulphite K 5% KOH, Prev H_2O_2

187 - 1" Carb Soda 1/4" glucose Prev H_2O_2

188 3/4" Carb Soda 1/4" Ferracy 1/4 glucose Prev H_2O_2

Note, glucose in KOH from 1% KOH to 21% - brighten the pockets 1% KOH, with considerable glucose not all right brightens the least, its not a shining bright like acid but a grey bright on the side where the Ni forced the iron, the opp side is acid bright, Evidently glucose reduces the ferric or dissolves it the solution gets inky black —

A sol with $Ni(OH)_2$ also blackens — chills dried ferric hydrate Can't say sure but think the blackening with $Ni(OH)_2$ is due to iron in the nickel hydrox this I will ascertain. If this works all it would be possible to clean Ni by cleaning the iron as the sol which have no action on metals

now & thus necessity of
washing cell would be
obviated, it would be
necessary to warm it
Change the washing
Sol of 1% KOH, many times
over a considerable period
to eliminate the Hg dose
otherwise it passed
under the new solvable
form the metal quickly
probably Mercury may
be carried as well as Zinc
forming the metal,
then the solution would
not remove it Hg but
reduce it to metallic
only a double Cy of Ni &
another say K would
take out the Hg

I notice the solution alone
blackens by heat but
not so rapidly as it does
in presence of Nr & H2
hydroxides

190 solution [illegible] after 1 hour (exposure) turns yellow & shows increasing tendency to acid bright the grey bright made by glucose —

189 = Double oxalate Ni + K — Prussic dry

190 Double Citrate K + Nickel, Prussic Dried

191 3/4" Carb Soda 3/4" Neutral Pot glucose 6 hours 2 changes

192 1" Neutral Kali glucose 6 hours 2 changes

193 3/4" Carb Soda 1/4" Ferrocyk glucose 6 hours 2 changes

194 1/4" Silicate Soda, 8 hours glucose

195 3/4 Phosphate Soda 6 hours glucose

196 3/4 Phos Soda 1/4 Ferrocyk 8 hours glucose

197 3/4 Borax 8 hours glucose

201W 208-241 265-325-303-317-304
201D 216-325-330-342-350 360-
201D 362

Dry Bottle of arsenite
or arsenate
Thank arsenite

204D 63 77

198 3/4 Borax 1/4 " Ferrocyk — glycerol 2nd cl. glycerol

199 3/4 acetate Soda. " ✓

200 3/4 acetate Soda 1/4 Ferrocyk " ✓

201 1/2 Arsenite Soda " ✓

202 1/2 Arsenite ~~Soda~~ KOH 1/4 Ferrocy. 6 hour ✓

203 1/2 Chloride Soda (Salt) 1/4 Ferrocyk - 6 hour glycerol

204 1/2 Sulphide ~~Soda~~ K2S2N 1/4 " Ferrocyk 4 hour " ✓

205 3/4 Sunglass ~~Soda~~ 1/4 " Ferrocyk " ✓

206 - ChlZn + Na neutral. " ✓

The 6 hour glucose cups
Was in 3 hours then fresh KOH
glucose put in 3 hours
longer. Soaked big 6 zinkar in
1½ KOH for 1½ hours
then water only 1½ hours —
its obey not fresh KOH on glucose,

8 Hours glucose in longer
Soaked water 2 hours —
then fresh H_2O put in 10 KOH,
Soaked,

210 D - 188 220

207 ½ Nitrate K - ¼ Ferrocy K
put in 2 percent KOH V

8 hours glucose
2 days 1500

208 ¾ Carb Soda, ¼ Ferrocy K ✓ "
put in 2% Solution KOH,

209 ¾ Nitrate K "
2% Sol KOH,

210 ½ Cyanide K ✓
2% KOH,

211 Bisulphite K + Nickel Green
neutral —

212 8 hour glucose only —

213

214

214 D 153. 165
2

217 D 123 143

215. 5% KOH, 3 grms Gelatin hot ✓ glucose

216 10% KOH + ½" Sulphite Soda ✓ "

217 10% KOH ½" Sulfite Soda 1/4" Ferrocy K ✓ glucose

218 10% KOH, 1/4" Ferrocy K ✓ glucose

219 5% KOH. 1/4" Ferrocy ✓
Hydrosulphite Soda

220 2% KOH 1/4" Ferrocy K ✓

221. 5% KOH, Albumin 3 grms hot, ✓

222. 5% KOH, 1/4" Hyposulphite Soda ✓

223. 5% KOH, 1/4" Hyposulphite Soda 1/4" Ferrocy K ✓

Blues liquid Cy Hypo pp after 2nd washing — not before
dotts next morning after changing H_2O

Bluish water after all night + still
same after changing water

230 D 180 — 1893 — 206

224. 3/4" Nitrate Potash. 2 grms Ferrocy K ✓
glucose

225 3/4" Nitrate Potash 4 grms Ferrocy K ✓
Hypromelted cups —

226 3/4 Nitrate Soda 10 grms Cyanate K ✓

227 3/4" Carb Soda ~~10 grms~~ 7.9 grms Cyanate K. ✓
Hypromelted cups —

228 1/4" Mercuric Cyanide ✓
Hypromelted Cups

229 1/4 Mercuric Cyanide 1/2 Nitrate Potash glucose ✓

230. 1/4" Mercuric Cyanide 1" Carb soda glucose ✓

231 1/4 Mercuric Cy 5% KOH. glucose

232 1/4 Mercuric Cy 5 1/2" Carb Soda 5% KOH
(Hypromelted Cups)

233 D 95 93

234 D 97 124

235 D 110 123

236 D 110. 127

240 D 61. 68

233 1/4 Mecanic Cy 1/4 Ferrocy K glues

234 1/4 Mecanic Cy 1/4 Ferrocy 5% KOH "

235 1/4 Mecanic Cy 1/4 Ferrocy K 1/2" Carb Soda

236 1/2 Tungstate Soda + 5% KOH "

237 1/2 Tungstate Soda 1/2 Carb Soda glues

238 1/2 Tungstate Soda 1/2 Carb Soda 1/4 Ferrocy K glues

239 3/4 Nitrate K 1/4 Mecanic Cy glues

240 3/4 Nitrate K 1/4 Mecanic Cy 1/4 Ferrocy K glues

241 3/4 Hyposulphite Soda 1/2 Carb Soda glues

245D 163

Washes after all mixt or 1 change Glue

all fluoride Cups

242 3/4 Hyposulphite Soda 1/2 Nitrate Soda

243. 3/4 Hyposulphite Soda 1/4 Mercuric Cyanide ✓

244 1/2" Fluoride Potash 5% KOH ✓

245 1/2 Fluoride Pot 1/2" Carb Soda ✓

246 1/2" Fluoride Pot 1/2 Nitrate Pot ✓

247 1/2" Fluoride Pot. 1/4 Ferrocyanide ✓

248 2 grams Cyanide Pot 5% KOH ✓

249 5 grams Cyanide Pot 5% KOH ✓

250 10 grams Cyanide Pot 5% KOH ✓

255D 163 140.

251 = 5 grams Cyanide K 3/4" Nitrate K 1% KOH
glues

252 5 grams Cyanide K 3/4" Carb Soda 5% KOH
(Hypomelted/Cmpo)

253 3/4" Nitrate Ammonia 5% KOH
glues

254 3/4 Nitrate Ammonia 1/2 Carb Soda
(Hypomelted/Cmpo)

255 3/4" Nitrate Magnesium
glues

256 3/4 Nitrate Magnesium 5% KOH
glues

257 3/4 Nitrate Magnesium 1/4 Ferrocy K
glues

258 3/4 Nitrate Magnesium 1/4 Mercuric Cyanide
glues

259 3/4 Nitrate Zinc (Hypomelted Cmpo)

260 D 165

261 D 167

261 D 157

260 3/4 Nitrate Zinc 10% KOH ✓ glucose

261 3/4 Nitrate Zinc 1/2 Carb Soda 5% KOH glucose

262 3/4 Nitrate Zinc 1/4 Ferrocyk 5% KOH glucose

263 3/4 Alum glucose

264 = All might in Hyposulfite Na KOH. glucose

265 1/2 Fluoride ~~Soda~~ or K in ~~Rubber~~ ~~dark~~ - Cell glucose

266 1/2 Fluoride K or Soda, 5% KOH glucose in Rubber Cell

267 1/2 Fluoride K or Soda 1/4 Ferrocyk glucose in Rubber Cell

all glucose

268 1/2 Fluoride Kor ~~Soda~~ 1/2 Carb Soda in Rubber Cell -

269 1/2 Fluoride Kor Soda 1/2 Wolfrac Pot in Rubber Cell

270 1/2 Fluoride of K 1% KOH, and 1/4 Mercuric Cyanide, Rubber Cell

271 1/2 Fluoride K, 1/2 Carb Soda 1/4 Ferrocyan K - Rubber Cell.

272 1/2 Iodide Potassium

273 1/2 Iodide Potassium 5% KOH.

274 1/2 Iodide Pot 1/2 Carb Soda

275 1/2 Iodide Pot 1/4 Ferrocyn K.

264 DA 143 -
268 D 167-197

270 DA 154
270 D 167

271 DA 147
271 D 182

274 D 150-162 -163

276 D 155

277 D 154

277 – Bright –

282 AD 163 –
282 D 192 – 198 – 205
282 (Bright – Legend) Skight green tint
282 D 163
282 D 135
Very bright – yellow at first ulegend clear
not brighter much
284 D 203 – 209 – 217
284 D A – 172

276 1/2 Iodide Pot. 1/2 Nitrate Pot ✓

277 1/2 Iodide K 1/2 Nitrate Pot, 5% KOH ✓

278 1/2 Iodide Cadmium 5% KOH ✓

279 1/2 Iodide Cadmium 1/2 Nitrate K ✓

280 1/2 Iodide Cadmium 1/2 Carb Sodd ✓

281 1/2 Iodide Cadmium 1/4 Ferrocy K 5% K ✓

282 Soaked 1 hour oxalic – then under hour ~~[illegible]~~ KOH 21% warm 1/8 inch

283 Ditto phosphoric 1/8 inch

284 Ditto Arsenic 1/8"

not brightened much
285 D 203-208-233
285 DA 170

slight grayish tint, not brightened seriously mg

287 just a very little yellow fluorescent gamma
not holes say 1 milligram it turned
red after a while —
288 - notice but white stuff when taken out
wash - also little orange green stuff off —
[illegible] 16 — from that and in bottle taken
15 the wash — but so poly [illegible] not —
4 hours is poly limit in peroxide —
289 D 173 - 194 - 197 - 220

290 D 173 - 220 - 230 - 243

291 D 133 - 160 - 190 D 155
291 DA 202 - 217 -

292 D 220 - 170 - 100, - 317? 312 299 - 289
292 DA - ~~35~~ a - 299 - 303 -

285 ditto Chromic 1/16 inch

286 - ditto Sulphurous 1° -

287 = 2 hours in 2% (about) Hydrofluoric acid then water (warm) 4 hours. then 2% all night warm -

288 - All night in same solution as 287 + in Water 2 hours - then KOH 20% shut
Solution very green - ni dissolved cam. Scale
mg

289 - 1/2 Arsenite ~~Soda~~ 1/2 Carb Soda ✓

290 1/2 Arsenite ~~Soda~~ K 1/2 Nitrate ~~Soda~~ K

291 1/2 Arsenite ~~Soda~~ K 1/4 Ferrocy K ✓

292 1/2 Arsenite ~~Soda~~ K 1/4 Mercuric Cyanide ✓

Arsenious acid & Soda
293 D 13 – 248 – 265
293 A 160 – 222 – 230

294 D 152 – 143
294 A 157 – 177

295 D 152 – 200 – 233
295 A 157 – 208 – 217 – 251

296 D 144 – 172
296 A 133

297 D 206 – 262 – 260 – 250
" a 242 – 275 – 295 – 312 – 298 298

299 D 117
299 A 145 – 157

293 1/2 Arsenious ~~Soda~~ K 1 1/2 % KOH.

294 1/2 Arsenious Soda 21% KOH.

295 1/2 Arsenious Soda 1/2 Neutral K – 5% KOH

296 1/2 Arsenious Soda 1/2 Carb Soda 5% KOH

297 1/2 Arsenious ~~K~~ Soda
afterwards put in water & after 24 hours put in hot 21% for several hours.

298 1/4 Benzoylate ~~Soda~~ or K —

299 1/2 Orthophosphate K or Soda

301 D 100 – 144 – 193
301 A 100 – 127

302 D 104 – 117 –
302 A 146 – 148

304 D 150 – 44 – 213
304 A 143 – 165

305 D 50 – 0
305 A 0

306 D 50 – 0
306 A 0
~~[illegible]~~

307 D 90 – 121
307 A 116 – 127

308 D 104 – 132
308 A 160 – 183

300 1/2 Metaphosphate Soda or K ✓

301 1/3 Pyrophosphate K or Soda ✓

302 1/4 Bichromate K – ✓

303 1/4 Picate Soda or K. ✓

304 1/4 Iodide Potash & 5% KOH ✓

305 1/2 Nitrate Lead ✓

306 1/2 Nitrate Lead 1/2 Nitrate K ✓

307 3/4 Nitrate Magnesium ✓

308 1/2 Nitrate Magnesium 1/2 Nitrate K ✓

309 D 113 – 148
309 A 100 – 115

310 A 145 – 157

311 D 97 – 142
311 A 85 – 117

312 D 0 – 85
312 a 7 – 104

313 D 47 – 126
313 a 74 – 122

314 a 100 – 107
Bright

8 mol

316 D 157 – 149
316 a 143 – 157

317 D 89 – 103
317 a 95 – 100
Hursly

309 1/2 Nitrate Magnesium 1/4 Ferrocyk ✓

310 1/2 Nitrate Magnesium 1/2 Carb Soda ✓

311 1/2 Nitrate Magnesia 10 grms Cyanate K ✓

312 1/2 Nitrate Magnesium 1/4 arsenate K ✓

313 1/2 Nitrate Zinc ✓

314 1/2 Nitrate Manganeses ✓

315 1/4 Nitrate Bismuth ✓

316 1/4 Nitrate Bismuth 1/2 Carb Soda ✓

317 1/2 Nitrate Manganese 1/2 Carb Soda ✓

319 A 317

The PSC Special Lot

318 1/2 Ferrocy K – ~~[illegible]~~ on hot plate
12 hours, then Hot water every 4 hours for 24 hours
Then – 21 1/2 KOH, Heat for 10 hours
Then wash twice, 3 hours apart – on heater

319 Arsenate Soda "

320 1" Bicarbonate Soda "

321 1/2 Bunoxalate K or Soda "

322 1/2 Bichromate Pot

323 3/4 Phosphate Soda or K

324 1/2 Biborate Soda

325 1/4 Mercuric Cyanide

326 15 grams Cyanate K

Boiled 1½ hours then
Cooled in water —

326 - Arsenite ~~soda~~ saturated
Solution ~~[illegible]~~ boiling on
sand bath put in 6 pockets
Keep them nearly boiling
adding water for loss
by Evaporation, do this for
4 hours then put acid in
water & boil until test
show no phosphate, change
the water 2 or 3 times & boil
test after 1 hour boiling
Then put in 21% & boil
for 2 hours,

Soak all in water until
KOH is gone as tested by
litmus, then soak all night
~~[illegible]~~ & send to test,

326 A 326 B 326 C 326 D

326 E 326 F, -2 given to
LOH -

327 D 70 93
327 a 62 - 124

328 D 100 - 150
328 a 123 - 203 - 242

brought.

327 1/4 Antimoniate Potash ✓

328 1/2 Arsenite of Potash ✓

329 1/2 ~~Bifluoride of Potash~~

330 1/2 ~~Phosphite of Potash~~

331 1/2 Silicofluoride Potash ✓

333D 17-57
333a 50-33

bright

334D 158-150
334a 100-100

335D 83-127

336D 147-178
336a 143-166

337D 85-123
337a 105-132

338D 18-45
338a 17-69

332 = Same as 326 except strong Arsenite Soda, boiled 1½ hours, then boiled in Water

333½ Arsenite Soda 5½% KOH

334½ Arsenite Soda 21% KOH

335½ Arsenite Soda ½ Nitrate K 5% KOH

336½ Arsenite Soda ½ Carb Soda 5% KOH

337½ Arsenite Soda
afterwards put in water + after 24 hrs put in hot 21% for several hrs.

338½ Nitrate Magnesia ½ Arsenite K

342 K 312-293 293 -

342 D 409-420-408-412-417-397-391

339 1/2 K Phosphate Dibasic (ortho) ✓

340 1/2 Sodium Phos Extract - ✓

341 1/2 Natrium Pyrophosphate. ✓

342 1/2 Sodium Hypophosphorous ✓
after - Koff

343 1/2 Phosphate Ammonia ✓

344 Special - Boiled several hours Conc Ferrocyk
then boiled water 2 or 3 hours 2 or 3
Changes, Then Boiled 10% KOH,
3 or 4 hours, Then Boiled Water
2 or 3 hours several changes -

346A 192 217
346B 133 170

347A 165 195-
347B 172 203-220

345- Mercuric Cyanide - proceedings same as 344

346 Arsenate Soda same process at 344-

347 Arsenite Na - same process as 344-

348 1/4 Arsenious acid all night then water 10 hours changing 3 or 4 times then KOH 10% all night then water 10 hours changing 2 or 3 times,

349 D 312
349 A 427-433-400 407-383-333-343

350 D 342-363 360
350 A 404-430 403 412-417-390-351

352 A-90-120

352 B 133-150

349 = Metaphosphate K made from Glacial Phos Acid - with fifth excess of acid - Reg reduced by Cuprit Cup KOH after

350 - Same as 349 - Except cups are again reduced by H_2O_2

351 - Special - Cups further reduced by H_2O_2 + then boiled in 349 Solution - then boil H_2O, then boil KOH, then boil H_2O -

352 - Ferrocy K treated same as 344 ~~now~~ put in anaemic Soda, dil nitric then boil in mixture in water or then KOH 10% then water boil -

353 a 182 - 353 358
353 b 166

354 b 187
" a 158

355 a 132 156
355 b 133 147 → 160 367

356 a 82 - 100 -

356 b 87 67

353 = Mercuric Cy treated as 344 - + now to Gz treated like 352 it being in Na Arsenite -

354 = Arsenate Na treated as 344 + now put in Na Arsenite, + treated like 352.

355 = K Cyanate, treated like 344.

356 - K Cyanate treated like 344 - now put in Arsenite Na. in little cell hot, to soak all night, then H_2O hot change 3 times + free it from arsenite, then KOH hot, all night, then H_2O -

357.1- 132 156
357.2- 133 145

359.1 169 204-225
.2 133 150

357 - K Sulfite - treated like 344 -

358 - K Sulfite treated like 344 now in Na Arsenite treat allnight little cold hot then H_2O hot then KOH hot then H_2O -

359 - Na Nitrate, treated like 344

360 - Na Nitrate treated like 344 now in Arsenite Na treat like 358 -

361-2 178 197
361 # 159 192

363B 255-347-360 413-428-416-415-423 21 of Run
363a 215 292-320-333-359

364B 363-412-377 392-400-361-357
364a 353 377-367-379-386

361. Na Oxalate, treated like 344 -

362 K Oxalate treated like 344 - now in Na Arsenate - treat like 358 -

Metw - now w/w -
363 Ferro Cy K ~~treated~~ dup of 344 now in Metaphos K sources used in 349 - to be treated like 358 -

Metw now w/w ?
364 - Hg Cy - ~~Hg~~ dup treated like 344 - now in Metaphos K as used in 349 - to be treated like 358 -

365 B 312-367-375-300-308
4 a 307 367-347-353

369 C 133-210-200
367 a 147-177
367 B 193 193
367 C 123 153
367 B 177 184

366 A-263-323-343
366 B 313 392-400-327/sc

369 A 250-278-28[illegible]
369 B 182-238-253

Arsenate 1/2 & 3/4
Small the packet, used
4 packet & 1 in each
balls swelled as much
it broiled at crump
the weaker ones ok —
the 1 3/4 without dissolve

Melta now H_2O
365 - Arsenate Ka Na treated
like 344 — now put in Melaphos K
same as used — 349 —
but to G_2 treated like
358

Melta now H_2O
366 Arsenate Na - treated same
as 344 — now in Melaphos K
same as used — 349 —
to G_2 treated like 358

367 - 1/4 Arsenate K
368 1/2 Arsenate K
369 1m Arsenate K
370 1 3/4 Arsenate K
~~371 1 3/4 Arsenate K~~

The arsenate is acid
all day
then H_2O
then KOH
then H_2O —
Soaked 2 hours
in the bal
now with H_2O —
after KOH
+ H_2O

371 - not cleaned,
371A - 170 - 163
371B 123 133

372B - 138 - 163

374 A 162 167
374 B 115 122

372 A 173 - 203

371 - 1/4 sol Arsenious acid ~~all day~~ 3 hours
then H_2O, then KOH, then H_2O

372 1/4 Arsenic acid ~~all day~~ 3 hours
Then H_2O, then KOH, then H_2O

373 1/2 Arsenite Soda - ~~all day~~ 3 hours
with Ammonia — then H_2O
then KOH, then H_2O.

374 1/4 Arsenate K, 1/2 of the Water
to be ammonia water —
~~then all day~~ — then H_2O then
KOH, then H_2O -

375 - 1/32 Oxalic acid all day 3 hours
then H_2O, then KOH, then H_2O

2% — Even after 3 washings with water, acetone put in 2% Salicin got red —

377 B 280 276

380 Cups bright - Sal light black Brown

381 - Cups unchanged Sal Clear

376 1/64 Picric acid - Water + KOH ✓
treatment — 1½ hours soak

377 - 1/64 Tartaric acid - H_2O + KOH treat
2 hours soak

378 1½% KOH, few leaflets Tolerance ✓
2 hours soak

379. Cupric acid Little KOH, ✓
H_2O + KOH treat — 1 hour soak

380 1/16 Pyroligneous acid H_2O + KOH ✓
treatment

381 1/16 Paraoxybenzoic H_2O + KOH Treat

382 - Sol black - Cups bright
Cupfle KOH, + water & time, H_2O & milky
382b - 333 - 383 - 383
382a 253 - 281 278

383 - Sol green - Cups bright,

384 Sol green - Cups bright.

385 - Cups fairly bright - Sol. yellow brown
clear

386 - Sol brown - Cups cleaned
a little -

387 - Cups not clean - Sol. very pale green

Cup
382 gallic acid
H_2O + KOH boiled,

Cup
383 Trichloracetic,
H_2O + KOH boiled,

Cup
384 Hydrobromic acid
H_2O + KOH heat,

Cup
385 Para Toluidinesulphonic acid - H_2O + KOH heat

Cup
386 Disulphonaphthalic acid
H_2O + KOH heat

Cup
387 Meta Nitro Benzoic acid
H_2O + KOH

388 - Cups bright. Sol. float particles of ferric carbyd apparently

391 - Cups unchanged - brown ferric Sol.

392 = Sol green - Cups bright.

Cup is 3/4 dia
flat bottom
1/4" high of the
acid either Crystl
or liquid

393 - not cleaned

388 Cup acid amidopropionic acid
H_2O+KOH Treat

389 Cup ~~Monochlorobenzoic~~ acid
H_2O+KOH T

390 Cup ~~acid Cumunic~~
H_2O+KOH treat

391 Capevic acid Meta,
H_2O+KOH Treat

392 acid Bromoacetic
H_2O+KOH T

393 Orthonitro Cumunic
H_2O+KOH Treat.

394 = Cupro unchanged Sol purple
394a 233

395 Sol red – Cupro fairly bright.

397 – Sol clear but white flocculent
Cupro unchanged –

398 – Sol green – Cupro very bright.
Ppt rum at all

399 – Sol light white Cupro very bright

401 – Cupro bright Sol. Clear Ppt rum

all these $H_2O + KOH$ treatment

394 Acid Cressolinic – ✓

395 acid Rosalic ✓

397 acid Cinnamylic ✓

398 Citric ✓

399 Chlorocrotonic acid ✓

400. ~~Acetic~~

401 Acid Sulfoanilic ✓

402 — Sal Dr. Lemont all thro
Brown — Cups little brighter

403 — [illegible] — Sulfuric water litmus
Point run at all

404 Cleaned.
404 B 267 290 - 325

405 not Cleaned
405 B - 253 - 275 = 300
405 B 267 204

406 not cleaned

407. Bright.
407 B - 2 - 0

402 Chloric a ✓

403 Sulfo Salicylic acid ✓

404 acid Salicylic ✓

405 acid tetra Chloro phthalic ✓

406 Meta Oxybenzoic acid ✓

407 Phtalic acid, ✓

408 not cleaned —
after KOH all night. Transpt flake
(Coat in liquid) not so much
— 414 — 408B 217 22½

409 "
Same float flake —
409A 213 22½
409B 213 22½

410 Bright liquid green

411 — Bum ferric float

413 — Bright — liquid green
413A 15 15
B 2 0

408½ Carbonate ammonia ✓

409 1" Carb Ammonia ✓

410 cup of Succinnic acid — ✓

411 ½ acetate Potash — ✓

412 1/4" Succinic acid 1/4" acetate Potash ✓

413 Cup of Malic acid — ✓

414 - Bright, liquid green
also fluorescent
Phenomenon - apple cottage ale night floating shreds
[illegible]
415 - Bright -

416 not cleaned

417 - Bright, shade green in liquid

418 Liq ferric fluorescent

419 Bleached Cups

414 - Cup - acetic acid.

415. Cup Sebacic acid.

416. Cup Chysophanic acid

417 Cup Sulphopseudo cumol acid

418 Cup Hypochlorous acid -

419 Cup Dithonic acid

420 -

421 1/2 Cane Sugar 5% KOH, boil in nickel dish 4 or 5 hours then soak out in water

422 1/2 Cane Sugar 20% KOH boil 4 or 5 hours nickel dish soak out in water —

423

424

425

426

427

428

429 - not cleaned

430 not cleaned

431 - Cleaned, bright.
432 DB 2-28

432 - only slightly cleaned

433 - Rusty - not cleaned - Trioxybenzoic fluoresced.

434 not cleaned

435 - Cleaned only slightly.

436 cleaned.

437 - cleaned

Woodalcohol Series

429 Cup Sebacic acid in Woodalcohol ✓

430 Cup Chysophanic acid in ✓ "

431 Cup Sulphopseudocumal acid ✓ "

432 Cup Malic acid ✓ "

433 Cup Succinic acid ✓ "

434 Cup Phthalic acid ✓ "

435 Cup Meta oxybenzoic acid ✓ "

436 Cup Tetrachlorophthalic acid ✓ "

437 Cup Salicylic acid ✓ "

438 - Bright.

439 - Bright.

440 - Not cleaned - full white flocculent

441 - Partly cleaned

442 - " "
442 DB 137 - 245 - 327

443 - partly cleaned

444 Not cleaned

445 " "

446 - Not cleaned

Wood alcohol Series

438 Cup Sulfosalicylic acid ✓ Wood alc. 99

439 Cup Sulpho anilic acid ✓ "

440 Cup Chlorocrotonic acid ✓ "

441 Cup Citric acid ✓ "

442 Cup Tartaric acid ✓ "

443 Cup Cinnamylic acid ✓ "

444 Cup Rosolic acid ✓ "

445 Cup Cresolinic acid ✓ "

446 Cup Carbolic acid ✓ "

447 - not clean

448 DA 200

448 - fairly bright.

449 - not clean

450 not clean

450 DA 217

451 - bright - yellow -

452 Bright

453 - Nearly bright

454 - Bright

455 not quite bright -

Wood alcohol series

447 1/4" Arsenate Potash + Wood alcohol

448 1/4" Arsenite Soda or K ✓ "

449 1/2" Nitrate Potash ✓ "

450 1/4" Ferrocyanide K ✓ "

451 Cup Ortho Nitro - Cinnamic acid ✓ "

452 Cup Bromsacetic ✓

453 Cup Amidopropionic acid ✓ "

454 Cup Caperic acid meta ✓ "

455 Cup Meta Nitro Benzoic acid ✓ "

456 - Not cleaned

457 - Bright,

458 Bright

459 - partly Cleaned

460 - Nearly Cleaned
460 - Da 247 - 250 - 228

461 "

462 partly "
462 Da - 242

463 - Not cleaned
463 Da 248 - 247

464 Pinchbar bright

Wood alcohol series

456 Cup Disulphon aphtalic acid — wood alc "

457 Cup Para Toluidinsulphonic acid ✓ "

458 Cup Hydrobromic acid ✓ "

459 Cup Trichloroacetic acid ✓ "

460 Cup Gallic acid ✓ "

461 Cup Paraoxybenzoic acid ✓ "

462 Cup Pyroligneous acid ✓ "

463 Cup Picric acid ✓ "

464 Cup opalic acid ✓ "

465 not cleaned

466 "

467 "

468 "

468DA 183 240-223

469 "

470 nearly bright

471 - not cleaned

472 - Bright

473 Bright, nothing

Woodbladial Series

465 Cup Paraphenylen diamine in woodalcohol

466 Cup Tolidin Ortho ✓ "

467 Cup Benzidend base ✓ "

468 Cup Metaphenylen diamen base ✓ "

469 Cup Tolidin (base) ✓ "

470 Cup Picolin ✓

471 Cup Phenylphosphinic acid ✓ "

472 Cup Hydrochloric acid ✓ "

473 Cup Nitric acid ✓ "

474 not cleaned
after KOH. grism.

475 - Partly cleaned

476 " "

477BB 198 228

477 - not cleaned
478 Da - 200

478 not cleaned

479 - not cleaned

496 W 93	489 W 67
495 W 144	488 W 100
494 W 125	486 W 104
493 W 84	485 W 87
492 W 47	484 W 130
491 W 25	483 W 50
490 W 47	482 W 125

WOOD alcohol

474. Cup Red Chromic acid wood alcohol

475 Cup Arsenious acid " "

476 Cup Arsenic acid " "

477 Cup Cyanide Potassium " "

478 fill with Alcoholic Potash

479 fill with Alcoholic Ammonia

486DB - 150
485 " 150
483 " 190
482 " 122

488DA 160
486 " 158
485 " 217
484 " 167
483 " 223
482 " 179

481 - Bright - green stubb comes out
hard in grade —

510 W 179
509 " 110
508 " 92
507 " 43
505 " 123
504 W. 147
503 W 107
502 W 117

486 - not cleaned well
485 Bright - Stained slight pink but not
484 - not cleaned well
483 } not cleaned
482 } 485DA 217 232
Notice that 486 only gives milk
pink with Phthy. test!
Shade of green in legume
485 - Brown green fruit in 486
no green in others

480 - Boiled 4 hours in Carb Soda
in nickel dish put in
hot water —

481 - Boiled 4 hours in Cona
Carb soda - put in 1/2"
~~Carb~~ Chrysanite Soda
all night -

482 = 500 milligrams Meta Phos Na

483 1 gram " Its quite acid

484 3 grams
one dry one boiled -

485 6 grams

486 12 grams -

488 DB 232 246-267

489 DB 242 257

492 rather green

490 - Least ~~[illegible]~~ green

plates bright.

492 - both dry ones (roasted)

(all not colored or clean)

496 DB 145	496 DB 194
495 DB 143	495 " 157
494 " 183	494 " 178
493 " 153	493 " 199
491 DB 123	491 " 74
490 " 124	490 " 3
489 " 126	489 " 242
488 232	

Glacial Phos acid -

488 - 500 milligrams ~~Metaphosphoric acid~~

489 1 gram ✓ " "

490 .3 grams ✓ " "

491 .6 grams ✓

492 12 grams ✓

493 - ? ?

494 1¼% KOH - 3 grams Metaphosphate bodies

495 2½% KOH, 6 " ✓ "

496 5% KOH 12 " ✓ "

~~497 7½% KOH 24~~ " "

498 BD 200

Not green
Not cleaned

501 BD	213-321	501 BD	313
500 "	223	500 "	166
499 "	193	499 "	157
498 "	157	498 "	193

Not green
Not cleaned

498 - 1 gram Metaphos Soda in water

499 3 gram " Thereto "

500 6 gram " Cold soak

501 12 gram " Not to go on heater

~~[illegible]~~

502 1 gram Metaphos Soda 2% KOH

503 3 " 6% KOH "

504 6 " 11% KOH "

505 12 " 21% KOH "

~~[illegible]~~

The Called Sri Comes out
with Sol-optics putting in corks.
to not attack but seems because Sri were
reduced by current [illegible] H_2O_2
[illegible] 1 [illegible]
Nickel and [illegible]

509-DB 252 274-308
" Da 232 252-260

• All green legend

510 Little cleaned
other not cleaned
after changing legend + putting
in water - it got milky

Possibly this action of phosphate Combined
to do same thing that Bicht, + 33 does,

509-DB-	252	-295	502 DB	173	
5			4		
508 DB	143		510 Da	27	
			509 Da	232	
507 DB	143		508 "	176	
			507 "	177	
			505 "	153	
505 DB	190		504 "	194	
504 DB	220		503	156	
503 "	193		502 "	80	

507 1 gram Sodium Phosphate ✓

508 3 " ✓ " If [illegible] left [illegible]

509 6 " ✓ "

1 drop one broken

510 12 " ✓ "

~~Warren~~

512 1 gm Glacial Phosphoric Wood al

513 3 " "

514 6 "

515 12 "

522 - only partially cleaned

all others not cleaned

Solution clear - after putting in water all solution turns cloudy after two changes of water all clear again

Grams

520 2 Iron from 6 adcccl in 3 grams Metaphosphate Soda

521 ditto 6 grams "

522 ditto 12 grams "

522 2 Irons in 3 grams Metaphosphate Soda in ~~5% KOH~~ water

523 ditto 6 grams Metaphosphate ~~5% KOH~~ water

524 ditto 12 grams Metaphos in ~~5% KOH~~ water

525 2 Irons in 3 grams Metaphos Na in ~~5% KOH~~ water

526 2 grams in 6 grms Melaphos H₂
— 21% KOH.

527 Ditto 12 grms —

528 3 grams from bad cell
boiled in 21% for 6 hours.

529 = 3 grams from bad cell
boiled 6 hrs with 21% KOH
Continuing 1 gram dissolved
in oxide free Wash
in fresh 21% hot twice
afterwards —

Sol Colorless - 530 BD 143
529 " 150

Yellow Solution float ferric

Yellow Sol-float Ferric

after putting above in
water Solution becomes
Colorless -

430 Da 200 247
" AB 138 177

531 Da 137
530 " 157
529 " 143

526 Old news from Bad Cell
12 grms Metaphos Soda in 5% KOH

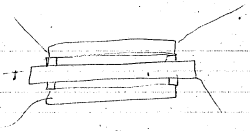
527 Dittto
6 grms Metaphos Na in 2½% KOH
1/2 water

528 - Ditto
3 grms Metaphos Na in 5% KOH
3/4 water 1¼% KOH.

Nickels
529 - 3 grms Phosphite Soda in 5% KOH

530 6 " " " "

531 12 " " "



170 - 10 amp

150

170
15% - 19
17 | 32
7.20
1.53

538 wet 475
537 498
534 507
533 W.B 500
532 " 500
533 W.A 508
536 W 508

~~532 DB 500~~

532 = 3.2 Reg Nickel - 10% grams
with Reg nons - Run in 71.1% Reg - give me the Nickel after they have been corrugated I want to break them - 12%
to be soaked all night Metaphos Soda then H_2O then KOH, then H_2O

533 Dup of 532 5 grams

534 " " $2\frac{1}{2}$ grams

~~535~~

536 Treat in Phosphate of Soda 12 grs

537 Dup of 536 6 "

538 " " 3 "

5 · 55

548

543 W 380 | 390 | 537 W 480
542 W 417 | 422 | 534 W 502
541 W 473 | 533 WB 492
540 W 485 | 532 " 513
539 W 497
538 W 430

14th

542 wet 425-438-
541 " 476
540 " 497
539 " 509
538 " 479

542 BD 327-348
543 BD 307-370
544 BD 300-326
545 BD 395-427
546 BD 321-367
547 BD 283-129

543 14th run 47

[illegible] Ni Comes out in solution perhaps 5 milligrams - also [illegible]

Noticed [illegible] Ni became water 3 hours with 3 or 4 changes. Called drink Ni flocky but only lit little. Come out - quickly put it in KOH 21/2 + put in hot [illegible]

539 - Same but treat with Arsenite K - 12 grams

540 Drop of 539 6 grams

541 " " 3 "

542 Glacial Phosphoric acid (Merck CP) sticks dissolved in water - guess about 4 oz in 400 cc - then kept adding 33% KOH till about neutral, perhaps slightly alkaline by paper - if it fully alkaline solution turns yellow - This solution was poured into cells containing various weights of glacial phos acid - 542 - Contains 1 gram phos acid with above solution, to soak all night had

Practically neutral

543 acted same as 542 as to collow coming out, put KOH in 21/2 + put on heat

544 also gives it after 10 minutes more

543 W 392

N. Come out – all these salts

but when – water 15 & 20 very little more 12 but does come out in 15 but does come out in water solution

547 – AD	1st 200	5th	
546 "	367		
545 "	367		
544 "	394	387	
543	357	372	
542 "	348		

546 BD 352
545 " 433
544 " 337
543 " 397
542 " 344

543 Dup of 542 – but has 3 grams glacial Phos a almost neutral

544 – Dup of 542
6 grams glacial
little acid,

544 S	716
543 W	392
542 W	400
543 A	423
	381

545 Dup of 542
9 grams glacial
strongly acid –

546 Dup of 542
12 grms glacial

547 Dup of 542
15 grams glacial

548 BD 373

Mi Comes out

549 No Mi Comes out

Mi Comes out,

548BD 242 - 262 549 AD 200
549 " 143 - 158 548 " 257

548 Dup of 542
20 grams glacial —

549 = 9 solution of 542
decidedly alkaline — yellow —

550 - Reg Mi in frame put in
solution of bottle 542

551 Reg Mi in frame put in solution
of bottle 543 —

all solutions except 553
gradually, 553 color lessens

Cup bright on 556 555 554 —
other not cleaned —

Very large precipe 556 most.
553 least.

552 BD 127-123 | 554 AD 267
553 " 244
552½ 90-93 | 552½ 300
552 219
554 BD 178-213 — | 555 BD 313-344, 353
555 AD 443-433 — 435 —
553 BD 233-230

I now make a big lot of glacial acetic plus acid neutralized by 33% KOH. until slightly yellow tint + slightly alkaline to the solution proper.
2 lbs Merck CP glacial
1000 cc water + this is increased probably 50% — built by adding the 33% KOH to this solution called standard — make following

552 = Put in Cell 100 mlg glacial plus zofull strength standard solution
552½ only standard sol — ✓
553 — " 200 " " ✓
Soak 5 hrs. H_2O
554 400 " ✓

555 BD 313-344-353
555 OD 435

556-BD 133
556 OD 133 147

555 OD 443

555 put - 600 mlg glacial L

556 1 gram " L

~~556~~ 2 " "

~~557~~ 3 " " Soak 10 hours hot

~~558~~ 5 " "

~~559~~ 10 " "

all tinted a little 564 most. 559 negly clear
564 cleaned cup others not cleaned

Precipitates: very little difference but
those 559 apparently gives 3/4 of
what 564 does —

Bipuretate Dally put 33% in mixed
water warm 3 minutes pbly spasmt
then took it out spun water in —
this set will pbly cost difference.

462 Da	223	267	564 BD	183	194
465 "	198	227			
466 "	180	200			
561 BD	220	223-348			
566 BD	193	208	564 AD		290
562 BD	135	142	563 "		300
563 BD	133	144	560 "		207
559 BD	160	190	559 "		217

559 - plain standard Diluted 1/2 L

560 - 1/2 dilute standard solution L
put in Cell 100 mlg glucose

561 ditto 200 " L

562 " 400 " L

563 " 600 " L

Soak 10 Heat 4 hours

564 1 gram L

565 2 " "

566 3 "

567 5 "

568 10 " "

568 on all night - no color -

569 ~~Color~~ no color -

570 no color

571 no color

572 - no color after 6 hrs on all night

573 no color

None of Cups cleaned

Except 573 -

Dropping with 33% 573 plant sizes walnut, 572 - small walnut
271 - size marble, 270 dirty. 569 Pen 568 - Nothing

573 BD	196	185	
572 "	157	167	
571 "	143	160	
570 "	150	173	
569 BD	150	160	
568 BD	177	193	

The dilute flocculent ppt
that was damaged in
sedimentation in
appearance

568 - 3/4 H_2O 1/4 standard plain ✓

569 = Dilute the standard so 1/4 ✓
standard 3/4 water -
put - cook 100 mlg glacial

570 " 200 " ✓ "

571 400 ✓

572 600 ✓ Soak 10 hours

573 1 gram ✓ Half

574 2 "

575 3 "

576 5 "

577 10 "

573 OD 278
572 " 232
571 " 223

578 full strength standard + put in cell 100 mlg glacial

579	200	"
580	400	"
581	600	"
582	1 gram	
583	2 "	"
584	3 "	"
585	5 "	"
586	10 "	"

Soak 5 hours hot

587 - Put 1/2 ~~strength~~ of dudaud
+ in each 100 milg glaccal

588	200	"
589	400	"
590	600	"
591	1 gram	"
592	2 "	"
593	3 "	"
594	5 "	"
595	10 "	"

Soak 5 hours

596 - Put 1 pt slaked lime 3 pts water
succeed with 100 chlorine placed

597	200	"
598	400	"
599	600	"
600	1 gram	"
601	2 "	
602	3	"
603	5	"
604	10 "	

Soak 5 hours

605 = Put standard full ~~strength~~
put in 100 mlg glucose

606 200 "

607 400 "

608 600 "

609 1 gram "

610 2 "

611 3 "

~~612~~ 5 "

613 10 "

Soak 10 hours
Cold

after 10 hours solution colorless
Hull white flocculent
Chesnut cleared

616 615 614 - Remarkably very visible
precip.

~~[illegible]~~

615 BD 168 192
614 " 210 225
613 " 177 183
612 " 57 192
611 " 220 223

615 AD 207
611 " 223

611 1/2 standard 1/2 H_2O plain - ✓
612 - 1/2 standard solution
" 100 milg glacial ✓
613 200 " ✓
614 400 ✓ "
615 600 grams ✓
616 1000 grams ✓
617 " "
618
619

Soak 10 hours

after 10 hours solution colorless
Cupro not cleared full
white flocculant, Cupro not
cleared —

616 BD 210 220
617 BD 117 123
618 BD 187 186

615 BD 188 192
614 BD 210 225
613 BD 177 183

620 BD 190 207
621 BD 190-167
622 BD 0-6 —

621 AD 242
620 " 220

617 1/4 sl. mud and 3/4 H_2O glass ✓
618 1/4 glass and 3/4 water ✓
100 mlg acid glacial

619 200 ✓ "
620 400 ✓ "
621 600 ✓ Soak cell
622 1 gram ✓ 10 hours
~~623~~ "
~~624~~ "

Cups not cleaned –
The dark yellow color of flocculent precip that bottles had at 185 disappeared. Solutions nearly colorless –

~~UD~~ Wright
~~Has~~ 5132 covers precips in all.
629 has the least 625 most.

All Solutions alkaline –
629 strongly alkaline

625 BD	225	226	
629 BD	150	181	
628 "	200	217	
627 "	185	198	
626 BD	150	152	

628 AD - 233

625 - Standard Solution.
100 milligrams KOH slide

626	200	"	"	
627	400	"	"	
628	600	"	"	Stock 10
629	1 gram	"	"	Hazy
630	2 grams	"	"	
631	2 oz	"		

Notice 630. Light yellow gradually goes to deeper color until gets to 634 which is red yellow + strong. Then it gets lighter color to 637 — 637 has a precip. the others also but not so great. 630 the least.

20 | 5000 — (250
400 — 500
100 — 200
32
96 — 16

20 —

3 | 4
13

250
3
75

Standard Sol decidedly yellow —

630 - Standard Solution - undiluted, 2 grams Slick KOH.

631 3 grams "

632 4 grams "

633 5 grams "

634 8 grams "

635 12 "

636 20 "

637 30 "

Notice on 638 639 - some Cadmium
Nickel standard Cons 0.02

638 Standard solution diluted half — 2 grams alcoholic KOH

639 3 grams alcoholic KOH.

640 4

641 5

642 8

643 12

644 20

645 30

230 000 gal
3 000 000
1 250 000
4 480 000

38
24
152
76
3 | 912
3 | 384
216
180
36

1216
850

6
4 000
1 500

36
24
144
72
864
30 | 1728
90
60

1 500 000

380
3
3 | 1140
3 | 380
152

15
4
60

1216
192
24
1024
121 6
233 47

3 230

23

30 000
200 000

400 000
2 800 000
3 000 000

6000
86
1200
2000
10 brick

152
192
304
38
152
2 91

23
1 35
1 26
1 26
1 26
2 62
2 76
14

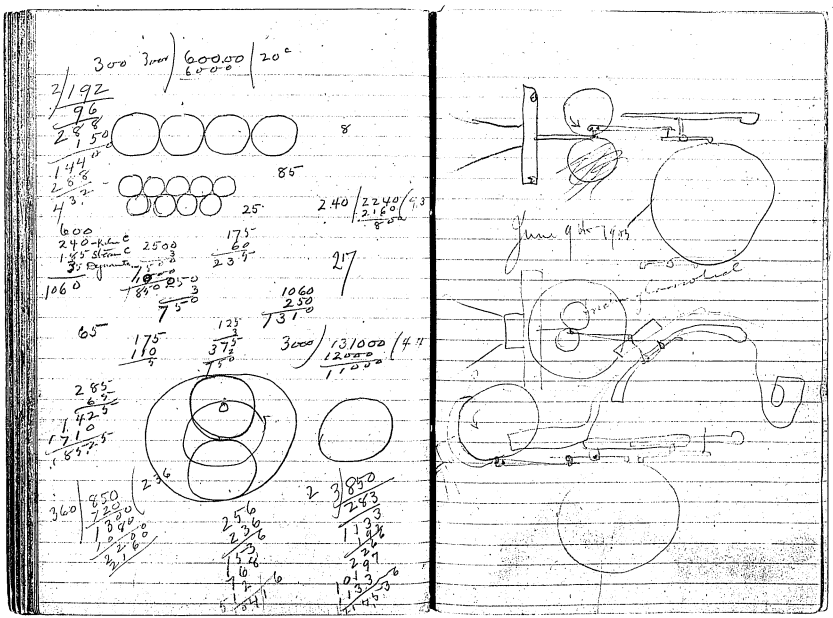
18
12
36
18 6
210
200
10

86
4 9
4 9

6000
86
1200
2000
10
4 80
4 9

290
350
7
2 03
2 04
3

23
1 19
350 | 1 19 00
1 00
19 00

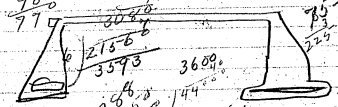

June 9th 1913

4 x 4 — 10

6 x 6 — 15 — 10

9 x 9 — 22.50 — 15

12 x 12 — 30.00 — 16



12 — 6

6 — 6

4 — 4 — 10

6 — 6

9 — 9 — 15

12 — 12 — 20

10 —

4 + 4 10

6 + 6 — 15